

THE CLAIMS DEFINING THE INVENTION ARE:

1. Steering apparatus for control of a vehicle by a rider, including:

handlebars adjustable to at least two positions, characterised in that the handlebars are capable of being transferred independently from a first position to another position by the rider and are capable of being fixed in at least one position by the rider independently of the steering function.

2. Steering apparatus for control of a vehicle by a rider as claimed in Claim 1, wherein the handlebars are capable of moving around a central point.
3. Steering apparatus for control of a vehicle by a rider as claimed in Claim 2, wherein the handlebars are capable of being moved from a first position to another position by the rider by pivoting around said central point and are capable of being fixed in at least one position by the rider.
4. Steering apparatus for control of a vehicle by a rider as claimed in Claim 3, wherein the steering apparatus includes at least one spring.
5. Steering apparatus for control of a vehicle by a rider as claimed in Claim 4, wherein the spring(s) is incorporated into the handlebars of the steering apparatus.
6. Steering apparatus for control of a vehicle by a rider as claimed in Claim 5, wherein the spring(s) provides load to the at least one handlebar when being moved from a first position to another position by the rider.
7. Steering apparatus for control of a vehicle by a rider as claimed in Claim 6 wherein the at least two positions include a first position being a position when either or both a rider is using aero bars and the rider assumes a streamlined position, including an aero position.
8. Steering apparatus for control of a vehicle by a rider as claimed in Claim 6 wherein the at least two positions include another position being a position when either or both a rider is using conventional handlebars and the rider's body is substantially in an upright position, with hands in a base position.

9. Steering apparatus for control of a vehicle by a rider as claimed in Claim 6 wherein the at least two positions include transitory positions between or beyond the aero and base positions, or other positions conceivably taken by a rider, whether or not the positions are discrete or continuous.
10. Steering apparatus for control of a vehicle by a rider as claimed in Claim 6 wherein the steering apparatus are divided in the centre to produce a handle bar made up of two portions.
11. Steering apparatus for control of a vehicle by a rider as claimed in Claim 10 wherein each of the two portions is moveable or pivotable about an axis.
12. Steering apparatus for control of a vehicle by a rider as claimed in Claim 11 wherein each of the two portions is moveable or pivotable about its own discrete pivot point, or both portions are moveable or pivotable about a central dedicated axis point that is separate from the axis used for steering.
13. Steering apparatus for control of a vehicle by a rider as claimed in Claim 12 wherein each of the two portions is moveable or pivotable about its own discrete pivot point, each pivot point is substantially equidistant from, or located at, the centre line of the vehicle.
14. Steering apparatus for control of a vehicle by a rider as claimed in Claim 10 wherein each of the two portions includes brake and gear controls where such are required on the vehicle.
15. Steering apparatus for control of a vehicle by a rider as claimed in Claim 14 wherein movement or pivoting of each portion independently from the other enables both portions to be moved in unison, or independently.
16. Steering apparatus for control of a vehicle by a rider as claimed in Claim 15 wherein movement of each portion is effected as a result of spring pressure the release of which is controlled by the rider.
17. Steering apparatus for control of a vehicle by a rider as claimed in Claim 16 wherein the rider control means maintains steering and balance of the vehicle throughout movement of the portion(s) between the at least two positions.

18. Steering apparatus for control of a vehicle by a rider as claimed in Claim 17 wherein each portion may be fixed in the at least two positions via latching means.
19. Steering apparatus for control of a vehicle by a rider as claimed in Claim 18 wherein the latching means operate or are adapted to operate as locking means to lock the portion(s) in a preferred position.
20. Steering apparatus for control of a vehicle by a rider as claimed in Claim 19 wherein either or both the locking and latching means are releasable.
21. Steering apparatus for control of a vehicle by a rider as claimed in Claim 20 wherein release of the latching means is effected via actuator means.
22. Steering apparatus for control of a vehicle by a rider as claimed in Claim 20 wherein the releasable locking means include secure releasable locking means and forceable releasable locking means.
23. Steering apparatus for control of a vehicle by a rider as claimed in Claim 22 wherein the secure releasable locking means are operably released only via activation of a designated actuator.
24. Steering apparatus for control of a vehicle by a rider as claimed in Claim 22 wherein the forceable releasable locking means are operably released by forced release or via activation of a designated actuator.
25. Steering apparatus for control of a vehicle by a rider as claimed in Claim 24 wherein operation of the actuator means initiates the first stage of movement of a portion to one of the desired positions.
26. Steering apparatus for control of a vehicle by a rider as claimed in Claim 25 wherein the actuator means is configured as a spring pressure release mechanism.
27. Steering apparatus for control of a vehicle by a rider as claimed in Claim 26 wherein the actuator means is adapted to co-operate with an arm rest.

28. Steering apparatus for control of a vehicle by a rider as claimed in Claim 27 wherein an arm rest is associated with each portion.
29. Steering apparatus for control of a vehicle by a rider as claimed in Claim 28 wherein the arm rests are positioned adjacent each portion for use by the rider when assuming the aero position.
30. Steering apparatus for control of a vehicle by a rider as claimed in Claim 29 wherein each arm rest is linked to each relevant portion for use by the rider when assuming the aero position.
31. Steering apparatus for control of a vehicle by a rider as claimed in Claim 30 wherein the arm rests operate as trigger means such that as the rider applies pressure to the arm rests, that pressure effects movement of resilient means associated with the arm rests which effects release of latching/locking apparatus and operation of the actuator to release the relevant portion(s) and enable movement of the portion between the at least two positions.
32. Steering apparatus for control of a vehicle by a rider as claimed in Claim 31 wherein operation of the actuator allows movement of the handlebar portion(s) to the aero position.
33. Steering apparatus for control of a vehicle by a rider as claimed in Claim 32 wherein the resilient means of the armrests include at least one spring located relative to at least one of the portions, the armrest structures, the support structure of the handlebars.
34. Steering apparatus for control of a vehicle by a rider as claimed in Claim 31 wherein, the locking and/or latching means includes a locking cam, a tapered slot, a hook, spring resilience or any adapted latching device.
35. Steering apparatus for control of a vehicle by a rider as claimed in Claim 34 wherein locking and/or latching means also maintain the portion(s) in the aero position.
36. Steering apparatus for control of a vehicle by a rider as claimed in Claim 35 wherein the locking and/or latching means is adapted to release the handlebar portion substantially immediately on either or both removal of the rider's weight from the respective armrest and in conjunction with associated movement of the arm rest.

37. Steering apparatus for control of a vehicle by a rider as claimed in Claim 35 wherein the locking and/or latching means is the weight of an arm on the armrest alone preventing return of the handlebar portion back toward the base position.
38. Steering apparatus for control of a vehicle by a rider as claimed in Claim 35 wherein the locking and/or latching means optionally includes electronic weight sensors.
39. Steering apparatus for control of a vehicle by a rider as claimed in Claim 37 wherein movement of the portion back toward the base position can be effected by application of pressure by the rider on to the relevant portion against the spring pressure of the spring(s) of the individual portion until the releaseable locking mechanism on each side is re-latched and secures the portion with the rider's hand in the base, position.
40. Steering apparatus for control of a vehicle by a rider as claimed in Claim 39 wherein the realignment of both portions to the base position may be undertaken either in unison or one at a time.
41. Steering apparatus for control of a vehicle by a rider as claimed in Claim 40 wherein the realignment of both portions to the base position requires the rider's arm(s) to be lifted from the armrest.
42. Steering apparatus for control of a vehicle by a rider as claimed in Claim 41 wherein removal of the rider's arm(s) from the armrest enables the armrest to move upward under its own spring pressure and therefore effect movement of the locking/latching apparatus into a position to receive and lock the corresponding portion securely in place.
43. Steering apparatus for control of a vehicle by a rider as claimed in Claim 42 wherein each spring of each portion is adjustable to enable the tension to match that of the spring on the opposing portion.
44. Steering apparatus for control of a vehicle by a rider as claimed in Claim 43 wherein the spring of each portion effects one or more of:
 - a) movement of the portion from the base position to the aero position; and

- b) a balanced resistance that makes it possible to return the portions back to the base position, either together or separately; and
 - c) individual control by the rider over each portion; and/or
 - d) dual control by the rider over each portion; and
 - e) continuous smooth riding while transiting through the range of movements between at least the base and aero positions; and
 - f) automatic operation of the portion(s) to enable the rider to achieve the desired position quickly and with the least distraction from the act of riding as possible.
45. Steering apparatus for control of a vehicle by a rider as claimed in Claim 44 wherein the spring operation is replaceable with pneumatics, electronics or other mechanical means.
46. Steering apparatus for control of a vehicle by a rider as claimed in Claim 45 wherein the steering apparatus provides:
- a) the rider with full time access to the brake and gear controls mounted on each portion; and
 - b) reduced wind resistance without the need for additional handlebars;
 - c) reduced weight of the bike without the need for two sets of handlebars.
47. Steering apparatus for control of a vehicle by a rider as claimed in Claim 45 wherein the steering apparatus optionally includes dampers or any suitable shock absorbing system to reduce vibrations caused by irregularities in the surface over which a bicycle may be ridden.
48. Steering apparatus for control of a vehicle by a rider as claimed in Claim 47 wherein the shock absorbing system is located at strategic mounting and locating points including the normal hand positions, the pivot points of each handle, or locating stops and their respective contact points.
49. Steering apparatus for control of a vehicle by a rider as claimed in Claim 48 wherein the shock absorbing system incorporates a flexible or compressible material for the purpose of absorbing

and/or reducing road shocks and vibrations, including rubber, nylon, thermoplastic materials, leather, fluids, resilience means (including springs).

50. Steering apparatus for control of a vehicle by a rider as claimed in Claim 49 wherein the shock absorbing system is adjustable in relation to the level of shock absorption.
51. Steering apparatus for control of a vehicle by a rider as claimed in Claim 50 wherein the shock absorbing system is controllable in relation to the level of shock absorption by a rider during a ride.
52. Steering apparatus for control of a vehicle by a rider as claimed in Claim 10 wherein the steering apparatus includes adjustment means to allow adjustment of the dimensions and/or the position of the handlebars to suit the dimensions and preferences of the rider.
53. Steering apparatus for control of a vehicle by a rider as claimed in Claim 52 wherein the adjustment means includes orientation adjustment means facilitating adjustment of the orientation of the handlebars through any one or more of vertical, lateral and horizontal planes.
54. Steering apparatus for control of a vehicle by a rider as claimed in Claim 52 wherein the adjustment means includes length adjustment means to adjust the length of the handlebars, being the distance between the longitudinal axis of the vehicle and the gripping area on the handlebars.
55. Steering apparatus for control of a vehicle by a rider as claimed in Claim 53 and 54 wherein the adjustment means includes a clamp securing an internal tube with incremental, rotary and/or linear adjustment options, or adjustable stops.
56. Steering apparatus for control of a vehicle by a rider as claimed in Claim 1 wherein the vehicle is a bicycle, tricycle, scooter, jet-ski, or any other vehicle wherein the steering apparatus includes handlebars.
57. A method of attachment to a vehicle of steering apparatus for control of a vehicle by a rider, said steering apparatus including handlebars, the handle bars being comprised of two

handlebar portions, each handlebar portion operable between at least two positions, said method including steps of:

- a) Securing the steering apparatus directly to the front forks particularly where the vehicle is a bicycle, via a steerer tube, thereby replacing three separate items, including the aero bars, the handlebars and the stem.

58. A method as claimed in Claim 57 of attachment to a vehicle of steering apparatus wherein the steering apparatus is attached to the outside of the steerer tube of the front forks of the bicycle.

59. A method as claimed in Claim 57 of attachment to a vehicle of steering apparatus wherein the steering apparatus is attached to the inside of the steerer tube of a bicycle.

60. A method as claimed in Claim 59 wherein where the steering apparatus is attached to the inside of the steerer tube of a bicycle there is provided as an option, an adaptor, the bottom end of which wedges against the inside of the steerer tube and the top end of which provides an extension to the steerer tube, to which the steering apparatus is fitted.

61. A method as claimed in Claim 57 wherein the steering apparatus is attached to the bicycle via use of attachment means, including an adjustable clamp.

62. A method of triggering transfer between at least two positions of steering apparatus for control of a vehicle by a rider, wherein said steering apparatus includes handlebars, the handle bars being comprised of two handlebar portions, each handlebar portion operable between at least two positions, said operation being triggered via use of armrests, said method including the steps of:

- a) application of the rider's forearms against the armrests; such that
- b) depression or release of each armrest is effected against its own spring pressure; and said depression or release
- c) effecting operation of the actuator; leading to
- d) release of the corresponding handlebar portion from its latched or locked position enabling the handlebar portion(s) to move from one position to another.

- e) the actuator means being adapted to co-operate with an arm rest associated with each portion for use by the rider when assuming the aero position.
63. A method of triggering movement between at least two positions of steering apparatus for control of a vehicle by a rider as claimed in Claim 62 wherein the handlebar portions are adapted to be activated to move from one position to another singly, in series or in unison as dictated by the rider.
64. A method of transferring at least one handlebar portion of steering apparatus for control of a vehicle by a rider from a base position to an aero position, including the steps of: the rider placing a forearm on to the relevant armrest; and said forearm effecting pressure on the armrest, said pressure effecting a responsive movement of the armrest; which in turn effects movement relative to the spring pressure of the armrest; this movement effecting release of the locking mechanism of the corresponding handlebar portion; which pivots through an arc and into the aero position due to the resilience of its own spring; such that the handlebar portion arrives in, or near the rider's hand.
65. A method of transferring at least one handlebar portion of steering apparatus for control of a vehicle by a rider from a base position to an aero position as claimed in Claim 64 wherein the steering apparatus includes detection means for detecting placement or removal of the rider's arm relative to the arm rest.
66. A method of transferring at least one handlebar portion of steering apparatus for control of a vehicle by a rider from a base position to an aero position as claimed in Claim 65 wherein operation of the detection means effects control of releasable locking and/or latching means.
67. A method of transferring at least one handlebar portion of steering apparatus for control of a vehicle by a rider from an aero position to a wide position, including the steps of:
- a) removal of the rider's arm(s) from the armrest; and
 - b) release of one locking/latching means associated with the aero position and actuating at least one other locking/latching means associated with the base position; and

- c) application of pressure by the rider on to the handlebar portions against the spring pressure of the spring(s) of the individual handlebar to direct the handlebar portion to the base position; and
 - d) maintaining said pressure by the rider until releaseable locking means associated with the portion are re-latched to secure the handlebar portion and the rider's hand in the base position.
68. A method of transferring at least one handlebar portion of steering apparatus for control of a vehicle by a rider from an aero position to a base position as claimed in Claim 67 wherein the realignment of both handlebar portions to the base position may be undertaken either in unison or one at a time.
69. A method of manufacturing steering apparatus for control of a vehicle by a rider, including the steps of:
- a) Manufacturing handlebar, said handlebar being made up of two portions adapted to be adjustable to at least two positions,
- said portions characterized by being capable of being transferred independently from a first position to another position by the rider and of being fixed in at least one position by the rider independently of the steering function.
70. A method of manufacturing steering apparatus for control of a vehicle by a rider, as claimed in Claim 69 wherein the steering apparatus also includes:
- a) latching means to enable each portion to be fixed in the at least two positions and wherein the latching means is releasable and optionally operable as locking means to lock the portion(s) in a preferred position; and
 - b) actuator means adapted to co-operate with an arm rest associated with each portion for use by the rider when assuming the aero position; and
 - c) arm rests.

71. A method of manufacturing steering apparatus for control of a vehicle by a rider as claimed in Claims 69 and 70 wherein each of the two portions optionally also includes one or more of brake and gear controls; dampers or any suitable shock absorbing system, and adjustment means to allow adjustment of the dimensions and/or the position of the handlebars to suit the dimensions and preferences of the rider.
72. Combination gear and brake levers for use with steering apparatus as claimed in Claims 1 to 56, said steering apparatus including handlebars, the handle bars being comprised of two handlebar portions, each portion operable between at least two positions.
73. Combination gear and brake levers for use with steering apparatus as claimed in claim 72, wherein said gear and brake levers are included on each portion.
74. Combination gear and brake levers for use with steering apparatus, as claimed in Claim 73 wherein the levers are operable from all selectable riding positions.
75. Combination gear and brake levers for use with steering apparatus, as claimed in Claim 74 wherein the levers are characterised by either or both their smaller size and lighter weight when compared with levers used on conventional handle bars or on dedicated aero bars.
76. Shock absorbing apparatus for use with steering apparatus as claimed in Claims 1 to 56.
77. Latching apparatus for use with steering apparatus as claimed in Claims 1 to 56.
78. Attachment means for use with steering apparatus as claimed in Claims 1-56.
79. Handlebar portions for use with steering apparatus as claimed in Claims 1-56.
80. Customised handlebar portions for use with steering apparatus as claimed in Claims 1 to 56.